*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **E09R-01-BAC** **Mountain Run**

Location: Begins at the confluence with Flat Run and continues downstream until the confluence with the Rappahannock River.

City / County: Culpeper Co. Spotsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A Escherichia coli / 5A

E. coli bacteria criterion excursions (6 of 16 samples - 37.5%) from station 3-MTN000.59, at Route 620.

Mountain Run	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation			
Escherichia coli - Total Impaired Size by Water Type:			**6.14**

Sources:

Grazing in Riparian or Shoreline Zones	Impervious Surface/Parking Lot Runoff	Livestock (Grazing or Feeding Operations)	Manure Runoff
Runoff from Forest/Grassland/Parkland	Sewage Discharges in Unsewered Areas	Source Unknown	Waterfowl
Wildlife Other than Waterfowl			

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F01L-01-HG** **Lake Gordonsville**

Location: Includes the entirety of Lake Gordonsville, also known as Bowlers Mill Lake.

City / County: Louisa Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, mercury fish consumption advisory. The advisory, dated 09/30/04, limits largemouth bass consumption to no more than two meals per month.

Lake Gordonsville **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		**77.23**	

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F01R-01-BAC** **South Anna River**

Location: Begins at the headwaters of the South Anna River and continues downstream until the confluence with Rock Creek.

City / County: Louisa Co. Orange Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A | Escherichia coli / 5A | Fecal Coliform / 5A

E. coli bacteria criterion excursions (5 of 15 samples - 33.3%) for station 8-SAR089.35, at Route 613, and E. coli bacteria criterion excursions (9 of 17 samples - 52.9%) from station 8-SAR097.82, at Route 603. 2006 Assessment: Fecal coliform bacteria criterion excursions (5 of 19 samples - 57.1%) from station 8-SAR096.83, at Route 15.

South Anna River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**11.02**

South Anna River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			**7.55**

Sources:

- Grazing in Riparian or Shoreline Zones
- Impacts from Land Application of Wastes
- Livestock (Grazing or Feeding Operations)
- Runoff from Forest/Grassland/Parkland
- Sewage Discharges in Unsewered Areas
- Source Unknown
- Wastes from Pets
- Waterfowl
- Wildlife Other than Waterfowl

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F01R-02-BAC** **Wheeler Creek**

Location: Begins at the confluence with Camp Creek and continues downstream until the confluence with Hudson Creek.

City / County: Louisa Co.

Use(s): Recreation

Cause(s) / VA Category: Fecal Coliform / 5A

2006 Assessment: Fecal coliform bacteria criterion excursions (2 of 7 samples - 28.6%) from station 8-WLR000.26, at Route 640.

Wheeler Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			**0.22**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F01R-02-BEN** **Wheeler Creek**

Location: Begins at the confluence with Camp Creek and continues downstream until the confluence with Hudson Creek.

City / County: Louisa Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic-Macroinvertebrate Bioassessments / 5A

One of one biological monitoring event in 2006 at station 8-WLR000.26 resulted in a MACS score which indicates an impaired macroinvertebrate community.

Wheeler Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic-Macroinvertebrate Bioassessments - Total Impaired Size by Water Type:			**0.22**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F02R-01-BAC** **South Anna River**

Location: Begins at the confluence with Roundabout Creek and continues downstream until the confluence with Beaver Creek.

City / County: Louisa Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A

E. coli bacteria criterion excursions (7 of 12 samples - 58.3%) from station 8-SAR076.10, at Route 604.

South Anna River		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Escherichia coli - Total Impaired Size by Water Type:			**6.29**

Sources:

Grazing in Riparian or Shoreline Zones	Impacts from Land Application of Wastes	Livestock (Grazing or Feeding Operations)	Runoff from Forest/Grassland/Parkland
Sewage Discharges in Unsewered Areas	Wastes from Pets	Waterfowl	Wildlife Other than Waterfowl

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F02R-02-BAC** **Unnamed tributary to the South Anna River**

Location: Begins at the headwaters of an unnamed tributary to the South Anna River and continues downstream until the confluence with the South Anna River.

City / County: Louisa Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

E. coli bacteria criterion excursions (4 of 4 samples - 100%) from station 8-XIE000.27, upstream of Route 697, and E. coli bacteria criterion excursions (4 of 4 samples - 100%) from station 8-XIE000.40, upstream of the Twin Oaks STP.

Unnamed tributary to the South Anna River	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation			
Escherichia coli - Total Impaired Size by Water Type:			**1.34**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F03R-01-BAC** **South Anna River**

Location: Begins at the confluence with Northeast Creek and continues downstream until the confluence with an unnamed tributary to the South Anna River, approximately rivermile 66.97.

City / County: Louisa Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

E. coli bacteria criterion excursions (2 of 13 samples - 15.4%) from station 8-SAR068.57, at Route 605.

South Anna River	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation			
Escherichia coli - Total Impaired Size by Water Type:			**1.75**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F03R-02-BAC** **Taylors Creek**

Location: Begins at the headwaters of Taylors Creek and continues downstream until the confluence with the South Anna River.

City / County: Hanover Co. Louisa Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A

E. coli bacteria criterion excursions (2 of 18 samples - 11.1%) from station 8-TLR002.54, at Route 673 (Waltons Taven Road).

Taylors Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**16.27**

Sources:

Grazing in Riparian or Shoreline Zones	Impacts from Land Application of Wastes	Livestock (Grazing or Feeding Operations)	Runoff from Forest/Grassland/Parkland
Sewage Discharges in Unsewered Areas	Wastes from Pets	Waterfowl	Wildlife Other than Waterfowl

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F03R-03-DO** **Cub Creek**

Location: Begins at the confluence with Turners Creek and continues downstream until the confluence with the South Anna River.

City / County: Louisa Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Oxygen, Dissolved / 5A

Excursions below the minimum dissolved oxygen criterion (3 of 6 samples - 50.0%) from station 3-CUB001.73, at Route 601.

Cub Creek	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
Oxygen, Dissolved - Total Impaired Size by Water Type:			**3.04**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F03R-04-BAC** **Fork Creek**

Location: Begins at the confluence with South Branch Fork Creek and continues downstream until the confluence with the South Anna River.

City / County: Louisa Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

E. coli bacteria criterion excursions (2 of 6 samples - 33.3%) from station 8-FRK001.66, at Route 640.

Fork Creek		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Escherichia coli - Total Impaired Size by Water Type:			**1.70**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F04R-01-BAC** **South Anna River**

Location: The South Anna River from the confluence with an unnamed tributary upstream of Horseshoe Bridge Road downstream to the Ashland Municipal STP discharge near the confluence with Falling Creek.

City / County: Hanover Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A

The South Anna River from Route 33 to the Ashland Municipal STP was assessed as fully supporting but threatened during the 1998 cycle. In 2002, the segment was extended upstream to Taylors Creek and downgraded to impaired.

During the 2006 cycle, E. coli monitoring was conducted at the Route 33 bridge (8-SAR021.22), as well as at new stations 8-SAR014.47 and 8-SAR012.42. Violation rates were acceptable at the upstream stations (1/12 at 8-SAR021.22 and 0/9 at 8-SAR014.47), however there were 3 violations out of 12 samples at 8-SAR012.42. Because of the fully supporting status of the upstream portion, the impaired segment was shortened from the UT above Horseshoe Bridge Road downstream to the Ashland Municipal STP. The TMDL is due in 2014, but was in progress during the 2006 cycle.

The Pamunkey River Basin Bacteria TMDL was completed during the 2008 cycle and was approved by EPA on 8/2/2006; the TMDL included the entire previously listed length. This segment should be classified as a Category 4A water.

South Anna River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**8.95**

Sources:

Municipal Point Source Discharges	Non-Point Source

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F04R-03-BAC** **Stagg Creek**

Location: Headwaters to mouth at South Anna River

City / County: Hanover Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

During the 2006 cycle, Stagg Creek was assessed as not supporting the Recreation Use due to E. coli violations at 8-STG005.46 (Route 657) and at 8-STG001.00 (Route 686). During the 2008 cycle, the violation rates were 5/12 at 8-STG001.00 and 6/11 at 8-STG005.46.

Stagg Creek		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Escherichia coli - Total Impaired Size by Water Type:			**6.47**

Sources:

Agriculture	Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F04R-03-DO** **Stagg Creek**

Location: Headwaters to mouth at South Anna River

City / County: Hanover Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Oxygen, Dissolved / 5A

During the 2008 cycle, Stagg Creek was assessed as not supporting of the Aquatic Life Use due to a dissolved oxygen violation rate of 2/11 at 8-STG005.46 (Route 686).

Stagg Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Oxygen, Dissolved - Total Impaired Size by Water Type:			**6.47**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F05R-01-BAC** **Newfound River**

Location: Newfound River from the confluence of Needstan Creek to its mouth.

City / County: Hanover Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A

During the 2004 cycle, the segment was assessed not supporting of the Recreation Use based on fecal coliform violations at the Route 667 bridge (8-NFD002.26).

During the 2008 cycle, the E. coli violation rate was 2/10, therefore the impairment converted to E. coli. However, the Pamunkey River Basin Bacteria TMDL was completed during the 2008 cycle and was approved by EPA on 8/2/2006; the TMDL addressed this segment and Newfound River should be classified as a Category 4A water.

Newfound River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**10.60**

Sources:

Municipal Point Source Discharges	Non-Point Source

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York River Basin

Cause Group Code **F06R-01-BAC** **Mountain Run**

Location: Begins at the confluence of Madison Run and continues downstream until the confluence with the North Anna River.

City / County: Orange Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A

E. coli bacteria criterion excursions (6 of 12 samples - 50.0%) from station 8-MTN000.96, at Route 643.

Mountain Run **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**2.52**

Sources:

Grazing in Riparian or Shoreline Zones	Impacts from Land Application of Wastes	Livestock (Grazing or Feeding Operations)	Runoff from Forest/Grassland/Parkland
Sewage Discharges in Unsewered Areas	Wastes from Pets	Waterfowl	Wildlife Other than Waterfowl

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F06R-02-BAC** **Beaver Creek**

Location: Begins at the confluence with Cooks Creek, approximately 0.68 rivermile upstream from the Route 638 bridge, and continues downstream until the confluence with the North Anna River.

City / County: Orange Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A

E. coli bacteria criterion excursions (6 of 12 samples - 50.0%) from station 8-BRC001.88, at Route 638.

Beaver Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**2.51**

Sources:

Grazing in Riparian or Shoreline Zones	Impacts from Land Application of Wastes	Livestock (Grazing or Feeding Operations)	Runoff from Forest/Grassland/Parkland
Sewage Discharges in Unsewered Areas	Wastes from Pets	Waterfowl	Wildlife Other than Waterfowl

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F06R-03-BAC** **Gold Mine Creek**

Location: Begins at the headwaters of Gold Mine Creek and continues downstream until the confluence with the North Anna River.

City / County: Louisa Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A Escherichia coli / 5A

E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) from station 8-GMC002.19, at Route 613, and (2 of 9 samples - 22.2%) from station 8-GMC000.23.

Gold Mine Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:		**73.82**	**7.33**

Sources:

- Grazing in Riparian or Shoreline Zones
- Impacts from Land Application of Wastes
- Livestock (Grazing or Feeding Operations)
- Runoff from Forest/Grassland/Parkland
- Sewage Discharges in Unsewered Areas
- Source Unknown
- Wastes from Pets
- Waterfowl
- Wildlife Other than Waterfowl

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F06R-04-BAC** **North Anna River**

Location: Begins at the confluence with Beaver Creek and continues downstream until the confluence with Hickory Creek.

City / County: Louisa Co. Orange Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

E. coli bacteria criterion excursions (4 of 17 samples - 23.5%) from station 8-NAR061.09, at Route 651.

North Anna River		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Escherichia coli - Total Impaired Size by Water Type:			**3.07**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F07L-01-PCB** **Lake Anna and CON, GMC, and TRY**

Location: Includes the entirety of Lake Anna, including its tributaries Terrys Run, Goldmine Creek, and Contrary Creek.

City / County: Louisa Co. Orange Co. Spotsylvania Co.

Use(s): Fish Consumption

Cause(s) / VA Category: PCB in Fish Tissue / 5A

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. The advisory, dated 06/15/04 and modified 12/13/04 and 08/31/07, limits carp, largemouth bass, striped bass, white perch, white catfish, channel catfish, and bluegill sunfish consumption to no more than two meals per month. Additionally, there is a ban on the consumption of gizzard shad.

Lake Anna and CON, GMC, and TRY **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCB in Fish Tissue - Total Impaired Size by Water Type:		**9,595.35**	**22.34**

Sources:

Source Unknown

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York River Basin

Cause Group Code **F07R-01-BAC** **Pamunkey Creek**

Location: Begins at the confluence of Tomahawk Creek and Church Creek, forming Pamunkey Creek, and continues downstream until the impounded waters of Lake Anna.

City / County: Orange Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A

E. coli bacteria criterion excursions (12 of 24 samples - 50.0%) from station 8-PMC009.85, at Route 651, and E. coli bacteria criterion excursions (8 of 20 samples - 40.0%) from station 8-PMC014.75, at Route 630.

Pamunkey Creek	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation			
Escherichia coli - Total Impaired Size by Water Type:			**12.15**

Sources:

Grazing in Riparian or Shoreline Zones	Impacts from Land Application of Wastes	Livestock (Grazing or Feeding Operations)	Runoff from Forest/Grassland/Parkland
Sewage Discharges in Unsewered Areas	Wastes from Pets	Waterfowl	Wildlife Other than Waterfowl

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F07R-02-BAC** **Terrys Run**

Location: Begins at the confluence with Horsepen Branch and continues downstream until the confluence with Riga Run.

City / County: Orange Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A

E. coli bacteria criterion excursions (2 of 2 samples - 100%) from station 8-TRY006.72, at Route 624.

Terrys Run		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Escherichia coli - Total Impaired Size by Water Type:			**5.37**

Sources:

Grazing in Riparian or Shoreline Zones	Impacts from Land Application of Wastes	Livestock (Grazing or Feeding Operations)	Runoff from Forest/Grassland/Parkland
Sewage Discharges in Unsewered Areas	Wastes from Pets	Waterfowl	Wildlife Other than Waterfowl

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York River Basin

Cause Group Code **F07R-03-BAC** **Plentiful Creek**

Location: Begins at the confluence with an unnamed tributary to Plentiful Creek, upstream from the Route 601 bridge, and continues downstream until the confluence with Lake Anna.

City / County: Spotsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A

E. coli bacteria criterion excursions (7 of 19 samples - 36.8%) from station 8-PLT004.82, at Route 601.

Plentiful Creek		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Escherichia coli - Total Impaired Size by Water Type:			**3.12**

Sources:

Grazing in Riparian or Shoreline Zones	Impacts from Land Application of Wastes	Livestock (Grazing or Feeding Operations)	Runoff from Forest/Grassland/Parkland
Sewage Discharges in Unsewered Areas	Wastes from Pets	Waterfowl	Wildlife Other than Waterfowl

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F07R-04-BAC** **Tomahawk Creek**

Location: Begins at the headwaters of Tomahawk Creek and continues downstream until the confluence with Church Run.

City / County: Orange Co.

Use(s): Recreation

Cause(s) / VA Category: Fecal Coliform / 5A

2006 Assessment: Fecal coliform bacteria criterion excursions (2 of 7 samples - 28.6%) from station 8-THK000.09, at Route 612.

Tomahawk Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			**3.25**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F07R-05-BAC** **Berry Run**

Location: Begins at the confluence with Little Creek and continues downstream until the confluence with Clear Creek.

City / County: Orange Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

E. coli bacteria criterion excursions (8 of 20 samples - 40.0%) from station 8-BRY000.47, at Route 629.

Berry Run **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**2.25**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F08R-01-CD** **Contrary Creek**

Location: Begins at the headwaters of Contrary Creek and continues downstream until approximately rivermile 3.53, partially into the inundated waters of Lake Anna.

City / County: Louisa Co.

Use(s): Aquatic Life Wildlife

Cause(s) / VA Category: Cadmium / 5A

Monitoring at station 8-CON005.38 in 2006 revealed excursions above the freshwater, acute criterion for the aquatic life use for the following metals (followed by total excursions): cadmium (2), copper (3), lead (2), and zinc (3). Monitoring at station 8-CON003.86 in 2006 revealed excursions above the freshwater, acute criterion for the aquatic life use for the following metals (followed by total excursions): cadmium (2), copper (2), lead (2), and zinc (2).

Contrary Creek **Wildlife**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Cadmium - Total Impaired Size by Water Type:		**52.76**	**10.84**

Sources:

Impacts from Abandoned Mine Lands (Inactive)

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York River Basin

Cause Group Code **F08R-01-CU** **Contrary Creek**

Location: Begins at the headwaters of Contrary Creek and continues downstream until approximately rivermile 3.53, partially into the inundated waters of Lake Anna.

City / County: Louisa Co.

Use(s): Aquatic Life Wildlife

Cause(s) / VA Category: Copper / 5A

Monitoring at station 8-CON005.38 in 2006 revealed excursions above the freshwater, acute criterion for the aquatic life use for the following metals (followed by total excursions): cadmium (2), copper (3), lead (2), and zinc (3). Monitoring at station 8-CON003.86 in 2006 revealed excursions above the freshwater, acute criterion for the aquatic life use for the following metals (followed by total excursions): cadmium (2), copper (2), lead (2), and zinc (2).

Contrary Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Copper - Total Impaired Size by Water Type:		**52.76**	**10.84**

Sources:

Impacts from Abandoned Mine Lands (Inactive)

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F08R-01-PB** **Contrary Creek**

Location: Begins at the headwaters of Contrary Creek and continues downstream until approximately rivermile 3.53, partially into the inundated waters of Lake Anna.

City / County: Louisa Co.

Use(s): Aquatic Life Wildlife

Cause(s) / VA Category: Lead / 5A

Monitoring at station 8-CON005.38 in 2006 revealed excursions above the freshwater, acute criterion for the aquatic life use for the following metals (followed by total excursions): cadmium (2), copper (3), lead (2), and zinc (3). Monitoring at station 8-CON003.86 in 2006 revealed excursions above the freshwater, acute criterion for the aquatic life use for the following metals (followed by total excursions): cadmium (2), copper (2), lead (2), and zinc (2).

Contrary Creek **Wildlife**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Lead - Total Impaired Size by Water Type:		**52.76**	**10.84**

Sources:

Impacts from Abandoned Mine Lands (Inactive)

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York River Basin

Cause Group Code **F08R-01-PH** **Contrary Creek**

Location: Begins at the headwaters of Contrary Creek and continues downstream until approximately rivermile 3.53, partially into the inundated waters of Lake Anna.

City / County: Louisa Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5A

Excursions below the lower limit of the pH criterion range (21 of 23 samples - 91.3%) from station 8-CON005.38, at Route 522, and (2 of 2 samples - 100%) from station 8-CON003.86.

Contrary Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:		**26.38**	**5.42**

Sources:

Impacts from Abandoned Mine Lands (Inactive)

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F08R-01-ZN** **Contrary Creek**

Location: Begins at the headwaters of Contrary Creek and continues downstream until approximately rivermile 3.53, partially into the inundated waters of Lake Anna.

City / County: Louisa Co.

Use(s): Aquatic Life Wildlife

Cause(s) / VA Category: Zinc / 5A

Monitoring at station 8-CON005.38 in 2006 revealed excursions above the freshwater, acute criterion for the aquatic life use for the following metals (followed by total excursions): cadmium (2), copper (3), lead (2), and zinc (3). Monitoring at station 8-CON003.86 in 2006 revealed excursions above the freshwater, acute criterion for the aquatic life use for the following metals (followed by total excursions): cadmium (2), copper (2), lead (2), and zinc (2).

Contrary Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Zinc - Total Impaired Size by Water Type:		**52.76**	**10.84**

Sources:

Impacts from Abandoned Mine Lands (Inactive)

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F09R-01-BAC** **Northeast Creek**

Location: Begins at the confluence with an unnamed tributary to Northeast Creek, at rivermile 9.39, and continues downstream until the confluence with the North Anna River.

City / County: Spotsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A Escherichia coli / 5A

E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) from station 8-NST000.58, at a private road crossing, (2 of 14 samples - 14.3%) from station 8-NST003.46, at Route 622, and (2 of 12 samples - 16.7%) from station 8-NST007.84, at Route 614.

Northeast Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**3.77**

Sources:

- Grazing in Riparian or Shoreline Zones
- Impacts from Land Application of Wastes
- Livestock (Grazing or Feeding Operations)
- Runoff from Forest/Grassland/Parkland
- Sewage Discharges in Unsewered Areas
- Source Unknown
- Wastes from Pets
- Waterfowl
- Wildlife Other than Waterfowl

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F09R-01-DO** **Northeast Creek**

Location: Begins at the headwaters of Northeast Creek and continues downstream until the confluence with an unnamed tributary to Northeast Creek, approximately 0.37 rivermile downstream from the Route 622 crossing.

City / County: Spotsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Oxygen, Dissolved / 5C

Excursions below the minimum dissolved oxygen criterion (3 of 25 samples - 12.0%) from station 8-NST003.46, at Route 622, excursions below the minimum dissolved oxygen criterion (2 of 12 samples - 16.7%) from station 8-NST007.84, at Route 614, and excursions below the minimum dissolved oxygen criterion (2 of 12 samples - 16.7%) from station 8-NST011.67, at Route 208.

Northeast Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Oxygen, Dissolved - Total Impaired Size by Water Type:			**15.41**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F09R-01-PH** **Northeast Creek**

Location: Begins at the confluence with an unnamed tributary to Northeast Creek, approximately 0.67 rivermiles upstream from Route 622, and continues downstream until the confluence with another unnamed tributary to Northeast Creek.

City / County: Spotsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

Excursions below the lower limit of the pH criterion range (8 of 26 samples - 30.8%) from station 8-NST003.46, at Route 622.

Northeast Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**1.03**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F09R-02-BAC** **Music Branch**

Location: Begins at the headwaters of Music Branch and continues downstream until the confluence with Northeast Creek.

City / County: Spotsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) from station 3-MUS000.57, at Route 677.

Music Branch **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**3.47**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F09R-02-BEN** **North Anna River, UT (XHS)**

Location: Unnamed Tributary XHS from its headwaters to its mouth at the North Anna River

City / County: Hanover Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic-Macroinvertebrate Bioassessments / 5A

The unnamed tributary was assessed as not supporting of the Aquatic Life Use in the 2008 cycle due to impairment of the benthic community at station 8-XHS000.72.

North Anna River, UT (XHS)	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
Benthic-Macroinvertebrate Bioassessments - Total Impaired Size by Water Type:			**0.89**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F09R-02-PH** **Northeast Creek**

Location: Begins at the headwaters of Northeast Creek and continues downstream until the confluence with an unnamed tributary to Northeast Creek, approximately 2.28 rivermiles downstream from Route 208.

City / County: Spotsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

Excursions below the lower limit of the pH criterion range (3 of 12 samples - 25.0%) from station 8-NST011.67, at Route 208.

Northeast Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**8.24**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F10R-01-BAC** **Little River**

Location: Begins at the confluence with Hawkins Creek and continues downstream until the confluence with Locust Creek.

City / County: Louisa Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

E. coli bacteria criterion excursions (2 of 14 samples - 14.3%) from station 8-LTL030.55, at Route 654 (Signboard Road).

Little River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**4.01**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F10R-01-DO** **Little River**

Location: Begins at the confluence with Hawkins Creek and continues downstream until the confluence with Locust Creek.

City / County: Louisa Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Oxygen, Dissolved / 5C

Excursions below the instantaneous dissolved oxygen criterion (2 of 14 samples - 14.3%) from station 8-LTL030.55, at Route 654 (Signboard Road).

Little River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Oxygen, Dissolved - Total Impaired Size by Water Type:			**4.01**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F10R-01-PH** **Little River**

Location: Begins at the confluence with Hawkins Creek and continues downstream until the confluence with Locust Creek.

City / County: Louisa Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

Excursions below the lower limit of the pH criterion range (3 of 14 samples - 21.4%) from station 8-LTL030.55, at Route 654 (Signboard Road).

Little River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**4.01**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F11R-01-BAC** **Little River**

Location: The Little River from its confluence with Locust Creek downstream to the confluence with Beaverdam Creek.

City / County: Hanover Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

During the 2008 cycle, the segment was assessed as not supporting of the Recreation Use due to an E. coli violation rate of 2/10 at the Route 715 bridge (8-LTL024.86).

Little River		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Escherichia coli - Total Impaired Size by Water Type:			**10.26**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F11R-01-DO** **Little River**

Location: The Little River from its confluence with Locust Creek downstream to the confluence with Beaverdam Creek.

City / County: Hanover Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Oxygen, Dissolved / 5A

During the 2008 cycle, the segment was assessed as not supporting of the Aquatic Life Use due to a dissolved oxygen violation rate of 2/9 at the Route 715 bridge (8-LTL024.86).

Little River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Oxygen, Dissolved - Total Impaired Size by Water Type:			**10.26**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F12R-02-BAC** **Mechumps Creek**

Location: Mechumps Creek from its confluence with Slayden Creek to the Pamunkey River.

City / County: Hanover Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A

Mechumps Creek was initially assessed as not supporting of the Recreation Use due to fecal coliform violations at 8-MCP002.42.

During the 2006 cycle, the Bacteria TMDL for Mechumps Creek was developed and approved by EPA on 10/21/2004. The segment remained impaired for fecal coliform and E. coli and will be classified as Cat. 4A.

During the 2008 cycle, the impairment converted to E. coli.

Mechumps Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**5.70**

Sources:

Industrial Point Source Discharge	Non-Point Source

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F12R-02-PH** **Mechumps Creek**

Location: Mechumps Creek from its confluence with Slayden Creek to the Pamunkey River.

City / County: Hanover Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 4C

Sufficient pH violations were recorded at DEQ's Ambient Monitoring Station 8-MCP002.42, located at the Route 301 bridge, to assess this stream as partially supporting the Clean Water Act's Aquatic Life Use goal for the 1994 305(b) report. A Natural Conditions Assessment for Low pH was performed during the 2006 cycle. The report attributes the low pH in Slayden Creek and its tributaries, and Mechumps Creek from Slayden Creek to its mouth to natural swampwater conditions and recommends reclassification to Class VII swampwaters. Until the segments are reclassified, they will be assessed as Cat. 4C.

Mechumps Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**5.70**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F12R-03-PH** **Hornquarter Creek**

Location: All of mainstem Hornquarter Creek

City / County: Caroline Co. King William Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

Hornquarter Creek was initially evaluated not supporting of the Aquatic Life use support goal during the 2002 cycle based on pH standard violations at the Route 614 bridge (8-HQT002.12). During the 2008 cycle, the violation rate was 7/12.

Hornquarter Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**6.57**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F12R-04-PH** **Slayden Creek and tributaries**

Location: Slayden Creek watershed from its headwaters to its mouth at Mechumps Creek.

City / County: Hanover Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 4C

TMDL monitoring in the Mechumps watershed indicated widespread pH violations throughout Slayden Creek during the 2008 cycle:

17/17 at 8-SLD000.06 (Route 54)
18/18 at 8-SLD002.15 (Route 662)
1/1 at multiple stream walk stations

A Natural Conditions Assessment for Low pH was performed during the 2006 cycle. The report attributes the low pH in Slayden Creek and its tributaries, and Mechumps Creek from Slayden Creek to its mouth to natural swampwater conditions and recommends reclassification to Class VII swampwaters. Until the segments are reclassified, they will be assessed as Cat. 4C.

Slayden Creek and tributaries **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**4.53**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F12R-05-PH** **Mechumps Creek**

Location: Headwaters to the confluence with unnamed tributary to XEG

City / County: Hanover Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5A

During the 2006 cycle, the upstream portion of Mechumps Creek was assessed as impaired of the Aquatic Life Use due to a pH violation rate of 4/17 at 8-MCP009.56 (Arbor Oak Drive).

Mechumps Creek	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
pH - Total Impaired Size by Water Type:			**0.94**

Sources:

Source Unknown

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York River Basin

Cause Group Code **F12R-06-PH** **Campbell Creek**

Location: Headwaters to the mouth at Mechumps Creek

City / County: Hanover Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 4C

During the 2006 cycle, the pH violation rate at the Route 656 bridge (8-CBL002.37) was 2/17. Campbell Creek will be incorporated into the Natural Conditions Assessment for Low pH, Mechumps Creek report. The segment is considered a Cat. 4C water.

During the 2008 cycle, Campbell Creek from the unnamed tributary at rivermile 3.86 downstream to the confluence with Mechumps Creek was included in the Natural Conditions report. The segment was shortened to match.

Campbell Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**3.80**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F12R-07-BAC** **Crump Creek**

Location: The mainstem of Crump Creek.

City / County: Hanover Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

During the 2008 cycle, Crump Creek was assessed as not supporting of the Recreation Use based on an E.coli violation rate of 3/10 at the Route 605 bridge (8-CRU000.92).

Crump Creek		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Escherichia coli - Total Impaired Size by Water Type:			**9.40**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F12R-08-BAC** **Pamunkey River**

Location: The Pamunkey River from its start at the confluence of the South Anna and North Anna Rivers downstream to the confluence with Mechumps Creek.

City / County: Caroline Co. Hanover Co. King William Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

During the 2008 cycle, the segment was assessed as not supporting of the Recreation Use based on an E. coli violation rate of 4/25 at the Route 614 bridge (8-PMK082.34)

Pamunkey River		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Escherichia coli - Total Impaired Size by Water Type:			**12.18**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F13E-02-BAC** **Pamunkey River**

Location: From the tidal limit at Totopotomoy Creek to Macon Creek (the downstream boundary of watershed F13).

City / County: Hanover Co. King William Co. New Kent Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A

The Pamunkey River from Pampatike Landing to Macon Creek was initially listed on the 1998 303(d) list as impaired of the Recreation Use goal because of fecal coliform violations at Pampatike Landing (Route 654). EPA also identified the station on their list of "Waters Identified to Virginia for Consideration During Development of the Next Listing Cycle." This inclusion was probably in error as the segment was already 303(d) listed.

During the 2006 cycle, the bacteria standard changed to E. coli and the segment had acceptable violation rates: 1/19 at 8-PMK048.80 and 0/12 at 8-PMK039.74 and the segment was delisted. However, although the segment had been delisted, it was included in the Pamunkey Basin TMDL which was approved by EPA on 8/2/2006.

During the 2008 cycle, the Pamunkey River again failed the Recreation Use and expanded upstream to the tidal limit based on an E. coli violation rates of 5/30 at 8-PMK048.80 and 5/21 at 8-PMK056.87. Station 8-PMK039.74 had an acceptable violation rate (0/21). The segment will be considered a Category 4A water.

Pamunkey River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:	**1.240**		

Sources:

Industrial Point Source Discharge	Municipal Point Source Discharges	Non-Point Source

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F13R-01-BAC** **Matadequin Creek**

Location: Matadequin from the confluence with Parsleys Creek to the mouth.

City / County: Hanover Co. New Kent Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A

Matadequin Creek from Parsleys Creek to its mouth (5.01 miles) was assessed in 1998 as fully supporting but threatened of the Recreation use goal. In 2002, the segment was downgraded to impaired and the fecal coliform TMDL was due in 2014. The E. Coli TMDL for Matadequin Creek was approved by EPA on 10/21/2004 and the segment is a Cat. 4A water. The segment continues to be impaired of the Recreation use goal based on an E. coli violation rate of 3/11 at 8-MDQ001.37 in the 2006 cycle. The impairment converted to E. coli during the 2008 cycle.

Matadequin Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**4.72**

Sources:

Non-Point Source

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F13R-01-PH** **Matadequin Creek**

Location: Matadequin Creek and tributaries from the confluence with a UT at rivermile 9.93 to the mouth

City / County: Hanover Co. New Kent Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 4C

Matadequin Creek from Parsleys Creek to its mouth was assessed in 1998 as impaired of the Aquatic Life use support goal based on pH standard violations at the Route 606 bridge (8-MDQ001.58). During the 2004 cycle, TMDL monitoring indicated pH impairment further upstream and the pH impairment was extended to the headwaters. The TMDL for the original segment was due in 2010; the TMDL for the upstream portion was due in 2016.

The Natural Conditions Assessment for Matadequin Creek was completed in 2004. The report recommended that Matadequin Creek and its tributaries from the UT at rivermile 9.33 to the mouth be reclassified as Class VII swampwaters. Until the reclassification, the stream will be assessed as Cat. 4C. The upper portion of Matadequin had an acceptable pH violation rate (0/16), and was delisted during the 2006 cycle.

Matadequin Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**25.37**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F13R-02-BAC** **Totopotomoy Creek**

Location: Strawhorn Creek to the Pamunkey River.

City / County: Hanover Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A

Totopotomoy Creek was initially listed in 2002 as not supporting of the Recreation Use goal based on fecal coliform violations at the Route 606 bridge (8-TPT004.37). The bacteria TMDL is due in 2014. During the 2006 cycle, the impairment switched to E. coli (2/12).

The bacteria TMDL was completed during the 2008 cycle as part of the Pamunkey River Basin TMDL, which was approved by EPA on 8/2/2006. The segment is now considered a Category 4A water.

Totopotomoy Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**9.63**

Sources:

Non-Point Source	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F13R-02-PH** **Totopotomoy Creek**

Location: Strawhorn Creek to the Pamunkey River.

City / County: Hanover Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

In the 2004 cycle, Totopotomoy was assessed as not supporting the Aquatic Life use due to pH violations at 8-TPT004.37. The pH TMDL is due in 2016. During the 2008 cycle, the violation rate was 6/36.

Totopotomoy Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**9.63**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F13R-03-BAC** **Jacks Creek and major tributaries**

Location: Jacks Creek, Acquinton Creek, and Mallory Creek in their entirety.

City / County: King William Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

During the 2008 cycle, the streams were assessed as not supporting of the Recreation Use based on an E. coli violation rate of 4/22 at the Route 621 bridge (8-JKC004.15).

Jacks Creek and major tributaries **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**21.71**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F13R-03-DO** **Jacks Creek and major tributaries**

Location: Jacks Creek, Acquinton Creek, and Mallory Creek in their entirety.

City / County: King William Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Oxygen, Dissolved / 5C

The mainstem of Jacks Creek was assessed as fully supporting but threatened of the Aquatic Life Use in 1998 due to dissolved oxygen violations at the Rt. 621 bridge (8-JCK004.15). In 2002, the segment was downgraded to impaired and extended to incorporate Acquinton and Mallory Creeks based on the results of a special study:
DO 1/1 at 8-ACQ008.01;
DO 1/1 at 8-ACQ001.35;
DO 1/1 at 8-MLY001.58.

The TMDL is due in 2014.

During the 2008 cycle, the violation rate was 6/34 at 8-JKC004.15, so the segment remains impaired.

Jacks Creek and major tributaries **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Oxygen, Dissolved - Total Impaired Size by Water Type:			**21.71**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F13R-04-BAC** **Moncuin Creek, Webb Creek**

Location: From the headwaters of Webb Creek downstream to the swampy area around river mile 2.0.

City / County: King William Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A

In 1998, Moncuin Creek was assessed as fully supporting but threatened of the Recreation use because of fecal coliform violations at the Route 618 bridge.

In the 2002 cycle, the segment was extended to incorporate the station on Webb Creek and was assessed not supporting of the Recreation Use because of fecal coliform exceedances. The TMDL was due in 2014. The impairment converted to E. coli during the 2006 cycle.

During the 2008 cycle, the bacteria TMDL was addressed as part of the Pamunkey River Basin Bacteria TMDL, which was approved by EPA on 8/2/2006. This should be considered a Category 4A water.

Moncuin Creek, Webb Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**11.82**

Sources:

Municipal Point Source Discharges

Non-Point Source

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York River Basin

Cause Group Code **F13R-04-PH** **Moncuin Creek, Webb Creek**

Location: From the headwaters of Webb Creek downstream to the swampy area around river mile 2.0.

City / County: King William Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

In the 2002 cycle, the segment was as assessed not supporting of the Aquatic Life because of pH exceedances. The TMDL is due in 2014.

During the 2008 cycle, the segment remained impaired for pH:

pH 6/34 at 8-MNQ004.19 (Rt. 618);
pH 1/1 at 8-WEB002.00 (1995 study)

Natural conditions are suspected, therefore the water is considered a Category 5C water.

Moncuin Creek, Webb Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**11.82**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F13R-06-PH** **Sullens Creek**

Location: Sullens Creek from the pond at Etna Mills downstream to its mouth at Mehixen Creek

City / County: King William Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

The segment was initially assessed as not supporting of the Aquatic Life Use goal during the 2004 cycle based on pH violations at the Route 652 bridge (8-SLN001.46).

During the 2008 cycle, the violation rate was 5/13.

Sullens Creek		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life				
	pH - Total Impaired Size by Water Type:			**2.67**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F13R-07-PH** **Parsleys Creek**

Location: The mainstem of Parsleys Creek

City / County: Hanover Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 4C

Not supporting of the Aquatic Life Use goal because of the following pH violation rates:

1/1 at 8-PRS000.01(near Route 693)
15/16 at 8-PRS001.96 (Route 628)
15/16 at 8-PRS002.81 (Route 609)
1/1 at 8-PRS003.35 (Labrador Drive)

The Natural Conditions Assessment for Matadequin Creek was completed in 2004. The report recommended that Matadequin Creek and its tributaries from the UT at rivermile 9.33 to the mouth be reclassified as Class VII swampwaters. Until the reclassification, the stream will be assessed as Cat. 4C. Refer to fact sheet F13R-01-pH.

Parsleys Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**6.21**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F13R-08-PH** **Sandy Valley Creek**

Location: The mainstem of Sandy Valley Creek

City / County: Hanover Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 4C

Not supporting of the Aquatic Life Use goal based on a pH violation rate of 16/16 at Matadequin TMDL study station 8-SVC002.31 (Route 635).

The Natural Conditions Assessment for Matadequin Creek was completed in 2004. The report recommended that Matadequin Creek and its tributaries from the UT at rivermile 9.33 to the mouth be reclassified as Class VII swampwaters. Until the reclassification, the stream will be assessed as Cat. 4C. Refer to fact sheet F13R-01-pH

Sandy Valley Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**4.03**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F13R-09-BAC** **UT XDX to UT XDW to Pamunkey River**

Location: The mainstem of unnamed tributary XDX.

City / County: King William Co.

Use(s): Recreation

Cause(s) / VA Category: Fecal Coliform / 5A

The tributary was initially considered as not supporting of the Recreation Use goal based on a fecal coliform violation rate of 2/3 at the Route 604 bridge (8-XDX000.38).

UT XDX to UT XDW to Pamunkey River		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Fecal Coliform - Total Impaired Size by Water Type:			**3.74**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F13R-13-HG** **Pamunkey River**

Location: The Pamunkey River from Nelson Bridge Road (Route 15) downstream approximately 34 miles to the confluence with Jacks Creek near Liberty Hall.

City / County: Hanover Co. King William Co. New Kent Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

On 9/30/2004, VDH issued a fish consumption advisory recommending that no one eat more than 2 meals per month of blue catfish because of mercury contamination in the fish tissue.

Pamunkey River **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:	**1.123**		**11.84**

Sources:

Atmospheric Deposition - Toxics	Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F14E-02-CHLR** **Pamunkey River**

Location: The Pamunkey River from Sweet Hall Landing to the mouth.

City / County: King William Co. New Kent Co.

Use(s): Aquatic Life Wildlife

Cause(s) / VA Category: Chloride / 5C

The Pamunkey River from Sweet Hall Landing to the mouth (4.44 sq. mi.) was assessed not supporting of the Aquatic Life and Wildlife uses based on chloride violations at 8-PMK006.36, which is located at the southern end of Lee Marsh. The TMDL is due in 2016.

Pamunkey River **Aquatic Life**		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Chloride - Total Impaired Size by Water Type:	**4.368**		

Pamunkey River **Wildlife**		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Chloride - Total Impaired Size by Water Type:	**4.368**		

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F14E-03-BAC** **Pamunkey River**

Location: The Pamunkey River from Sweet Hall Landing to the mouth.

City / County: King William Co. New Kent Co.

Use(s): Recreation

Cause(s) / VA Category: Enterococcus / 5A

The Pamunkey River from Sweet Hall Landing to the mouth was assessed as not supporting of the Recreation use during the 2006 cycle based on an enterococci violation rate of 12/27 at 8-PMK006.36, located at the southern end of Lee Marsh. The TMDL is due in 2018. The violation rate in the 2008 cycle was 24/50.

Pamunkey River		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation	Enterococcus - Total Impaired Size by Water Type:	**4.368**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F14E-04-SF** **Pamunkey & Mattaponi River**

Location: The Pamunkey River and Mattaponi River and their tidal tributaries from the upstream limit of VDH-DSS SFC 049-004A, 11/5/2004 to their mouths at the York River.

City / County: King And Queen Co. King William Co. New Kent Co.

Use(s): Shellfishing

Cause(s) / VA Category: Fecal Coliform / 5B

Portion of VDH-DSS condemnation 049-004A, 8/25/2005

Pamunkey & Mattaponi River	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shellfishing			
Fecal Coliform - Total Impaired Size by Water Type:	**1.752**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F14R-02-BAC** **Harrison Creek**

Location: Harrison Creek and tributary upstream of pond at Elsing Green upstream to nearest tributaries.

City / County: King William Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

Harrison Creek was assessed as not supporting of the Recreation Use in 2008 based on an E. coli violation rate of 5/10 at the Route 632 bridge (8-HSN002.12).

Harrison Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**2.59**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F14R-03-PH** **UT to Cohoke Mill Creek**

Location: Mainstem upstream of Cohoke Millpond

City / County: King William Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

The UT was initially assessed as not supporting of the Aquatic Life Use in 2004 based on a pH violation rate of 2/2 at 8-XDM000.50 (Route 30 bridge). During the 2008 cycle, the segment remains impaired (6/13).

UT to Cohoke Mill Creek	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
pH - Total Impaired Size by Water Type:			**2.20**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F15R-02-BAC** **Brock Run**

Location: Begins at the confluence with Wash Branch and continues downstream until the confluence with the Ni River.

City / County: Spotsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

E. coli bacteria criterion excursions (2 of 9 samples - 22.2%) from station 8-BRK000.06, at Jackson Trail off Route 613.

Brock Run		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Escherichia coli - Total Impaired Size by Water Type:			**0.93**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F16R-02-BAC** **Po River**

Location: Begins at the confluence with Glady Run and continues downstream until the confluence with an unnamed tributary to the Po River at rivermile 6.69, near the upstream boundary of the Old Trap development.

City / County: Spotsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

E. coli bacteria criterion excursions (6 of 38 samples - 15.8%) from station 8-POR008.97, at Route 208.

Po River		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Escherichia coli - Total Impaired Size by Water Type:			**7.39**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F17L-01-HG** **Bowies Pond**

Location: Includes all of Bowies Pond.

City / County: Caroline Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

Excursions above of the water quality criterion based tissue screening value (TV) of 1,100 parts per billion (ppb) for mercury (Hg) in fish tissue from station 8-CAM001.00; bowfin (2003 and 2005).

Bowies Pond **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		**25.37**	

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F17R-01-BAC** **Mattaponi River**

Location: Begins at the confluence with Campbell Creek and continues downstream until the confluence with the South River.

City / County: Caroline Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

E. coli bacteria criterion excursions (3 of 25 samples - 12.0%) from station 8-MPN094.79, at Route 605.

Mattaponi River		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Escherichia coli - Total Impaired Size by Water Type:			**5.88**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F17R-01-PH** **Mattaponi River**

Location: Begins at the confluence with Campbell Creek and continues downstream until the confluence with the South River.

City / County: Caroline Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

Excursions below the lower limit of the pH criterion range (4 of 26 samples - 15.4%) from station 8-MPN094.79, at Route 605.

Mattaponi River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**5.88**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F17R-02-BAC** **Mattaponi River**

Location: Begins at the confluence with an unnamed tributary, draining from Goose Pond, and continues downstream until the confluence with Polecat Creek at the outlet of waterbody F17R.

City / County: Caroline Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

E. coli bacteria criterion excursions (2 of 6 samples - 33.3%) from station 8-MPN083.62, at Route 301.

Mattaponi River		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Escherichia coli - Total Impaired Size by Water Type:			**3.14**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F18R-02-BAC** **Matta River**

Location: Begins at the confluence with an unnamed tributary to the Matta River, approximately 0.5 rivermile upstream from the Route 632 bridge, and continues downstream until the confluence with the Poni River, forming the Mattaponi River.

City / County: Caroline Co. Spotsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

E. coli bacteria criterion excursions (5 of 17 samples - 29.4%) from station 8-MTA001.69, at Route 632.

Matta River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**11.15**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F18R-02-PH** **Matta River**

Location: Begins at the confluence with an unnamed tributary to the Matta River, approximately 0.5 rivermile upstream from the Route 632 bridge, and continues downstream until the confluence with the Poni River, forming the Mattaponi River.

City / County: Caroline Co. Spotsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

Excursions below the lower limit of the pH criterion range (2 of 18 samples - 11.1%) from station 8-MTA001.69, at Route 632.

Matta River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**11.15**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F18R-03-BEN** **Matta River**

Location: Begins at the confluence of the Mat River and the Ta River and continues downstream until the confluence with an unnamed tributary to the Matta River, approximately 0.5 rivermile upstream from Route 646.

City / County: Spotsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic-Macroinvertebrate Bioassessments / 5A

Two biological monitoring events in 2002 and one of two biological monitoring events in 2003 at station 8-MTA012.09 (upstream of Route 646) both resulted in a VSCI score which indicates an impaired macroinvertebrate community, as does the mean score of these four samples.

Matta River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic-Macroinvertebrate Bioassessments - Total Impaired Size by Water Type:			**1.20**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F19R-01-BAC** **South River**

Location: Begins at the confluence with White Run, approximately 0.6 rivermile upstream from Route 638, and continues downstream until the confluence with Mays Run, at rivermile 1.73.

City / County: Caroline Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

E. coli bacteria criterion excursions (2 of 16 samples - 12.5%) from station 8-STH004.37, at Route 638.

South River		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Escherichia coli - Total Impaired Size by Water Type:			**3.26**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F19R-01-PH** **South River**

Location: Begins at the confluence with White Run, approximately 0.6 rivermile upstream from Route 638, and continues downstream until the confluence with Mays Run, at rivermile 1.73.

City / County: Caroline Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

Excursions below the lower limit of the pH criterion range (2 of 18 samples - 11.1%) from station 8-STH004.37, at Route 638.

South River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**3.26**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F20R-01-BAC** **Polecat Creek**

Location: Begins at the confluence with Hackett Creek, approximately 0.5 rivermile upstream from Route 207, and continues downstream until the confluence with the Mattaponi River.

City / County: Caroline Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

E. coli bacteria criterion excursions (2 of 17 samples - 11.8%) from station 8-PCT002.29, at Route 601.

Polecat Creek		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Escherichia coli - Total Impaired Size by Water Type:			**6.66**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F20R-01-PH** **Polecat Creek**

Location: Begins at the confluence with Hackett Creek, approximately 0.5 rivermile upstream from Route 207, and continues downstream until the confluence with the Mattaponi River.

City / County: Caroline Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

Excursions below the lower limit of the pH criterion range (5 of 18 samples - 27.8%) from station 8-PCT002.29, at Route 601, and (3 of 12 - 25.0%) from station 8-PCT006.34, at Route 207.

Polecat Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**6.66**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F21R-01-BEN** **Herring Creek**

Location: Begins at the headwaters of Herring Creek and continues downstream until the confluence with Millpond Creek.

City / County: Caroline Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic-Macroinvertebrate Bioassessments / 5A

Two biological monitoring events in 2002 at station 8-HER012.99 (downstream of Route 601) resulted in a MACS score which indicates an impaired macroinvertebrate community.

Herring Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic-Macroinvertebrate Bioassessments - Total Impaired Size by Water Type:			**4.57**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F21R-01-HG** **Mattaponi River**

Location: The Mattaponi River from Route 628 in NVRO downstream ~40 miles to Melrose Landing at Route 602.

City / County: King And Queen Co. King William Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

During the 2006 cycle, 2003 monitoring indicated 3 exceedances of the mercury screening value at 8-MPN041.41 (observed effect). In addition, the VDH issued a fish consumption advisory in 2004 for mercury from the Route 628 bridge downstream about 40 miles to Melrose Landing at Rt. 602. The advisory recommends that adults eat no more than 2 meals/month of largemouth bass.

Mattaponi River **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:	**3.680**		**11.83**

Sources:

Atmospheric Deposition - Toxics	Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F21R-01-PH** **Herring Creek**

Location: Begins at the confluence with Dorrell Creek and continues downstream until the confluence with the Mattaponi River.

City / County: King William Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 4C

Excursions below the lower limit of the pH criterion range (3 of 12 samples - 25.0%) from station 8-HER000.33, at Route 600, and excursions below the lower limit of the pH criterion range (4 of 14 samples - 28.6%) from station 8-HER005.12, at Route 609.

Herring Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**6.99**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F21R-02-HG** **Mattaponi River**

Location: Extends from the Route 628 bridge and continues downstream approximately 40 miles, to Melrose Landing at Route 602.

City / County: King And Queen Co. King William Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, mercury fish consumption advisory. The advisory, dated 09/30/04, limits largemouth bass consumption to no more than two meals per month.

Mattaponi River		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fish Consumption				
	Mercury in Fish Tissue - Total Impaired Size by Water Type:			**10.90**

Sources:

Source Unknown

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York River Basin

Cause Group Code **F21R-02-PH** **Mattaponi River**

Location: Begins at the confluence with Maracossic Creek and continues downstream until the confluence with Gravel Run.

City / County: King And Queen Co. King William Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 4C pH / 5C

Excursions below the lower limit of the pH criterion range (32 of 163 samples - 19.6%) from station 8-MPN054.17, at Route 628, and USGS station 01674500. These stations are colocated.

Mattaponi River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**8.14**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F21R-03-BAC** **Reedy Creek**

Location: Begins at the headwaters of Reedy Creek and continues downstream until the start of Reedy Millpond.

City / County: Caroline Co.

Use(s): Recreation

Cause(s) / VA Category: Fecal Coliform / 5A

Fecal coliform bacteria criterion excursions (1 of 7 samples - 14.3%) from station 8-RDY003.43, at Route 648.

Reedy Creek		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Fecal Coliform - Total Impaired Size by Water Type:			**12.43**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F21R-03-PH** **Reedy Creek**

Location: Begins at the headwaters of Reedy Creek and continues downstream until the start of Reedy Millpond.

City / County: Caroline Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 4C

Excursions below the lower limit of the pH criterion range (4 of 6 samples - 66.7%) from station 8-RDY003.43, at Route 648.

Reedy Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**12.43**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F21R-04-PH** **Chapel Creek**

Location: Begins at the confluence with Beaver Branch and continues downstream until the confluence with the Mattaponi River.

City / County: King And Queen Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

Excursions below the lower limit of the pH criterion range (2 of 12 samples - 16.7%) from station 8-CPL004.15, at Route 721.

Chapel Creek	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
pH - Total Impaired Size by Water Type:			**4.44**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F22R-01-BAC** **Maracossic Creek**

Location: Begins at the confluence with Beverly Run and continues downstream until the confluence with the Mattaponi River.

City / County: Caroline Co. King And Queen Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

E. coli bacteria criterion excursions (4 of 18 samples - 22.2%) from station 8-MAR003.24, at Route 627.

Maracossic Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli - Total Impaired Size by Water Type:			**4.27**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F22R-01-PH** **Maracossic Creek**

Location: Begins at the confluence with Doctors Creek and continues downstream until the confluence with the Mattaponi River.

City / County: Caroline Co. King And Queen Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

Excursions below the lower limit of the pH criterion range (2 of 18 samples - 11.1%) from station 8-MAR003.24, at Route 627, and excursions below the lower limit of the pH criterion range (2 of 7 samples - 28.6%) from station 8-MAR004.41, at Route 646.

Maracossic Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**8.58**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F22R-02-PH** **Root Swamp**

Location: Begins at the headwaters of Root Swamp and continues downstream until the confluence with Beverly Run.

City / County: King And Queen Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

Excursions below the lower limit of the pH criterion range (3 of 6 samples - 50.0%) from station 8-ROT003.65, at Route 649, and excursions below the lower limit of the pH criterion range (2 of 2 samples - 100%) from station 8-ROT007.85, at Route 635.

Root Swamp **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**7.63**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F22R-03-DO** **Unnamed tributary to Root Swamp**

Location: Begins at the headwaters of an unnamed tributary to Root Swamp and continues downstream until the confluence with Root Swamp.

City / County: King And Queen Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Oxygen, Dissolved / 5C

Excursions below the instantaneous dissolved oxygen criterion (2 of 6 samples - 33.3%) from station 8-XDY000.27, at Route 689.

Unnamed tributary to Root Swamp		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life				
	Oxygen, Dissolved - Total Impaired Size by Water Type:			**0.70**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F22R-03-PH** **Unnamed tributary to Root Swamp**

Location: Begins at the headwaters of an unnamed tributary to Root Swamp and continues downstream until the confluence with Root Swamp.

City / County: King And Queen Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

Excursions below the lower limit of the pH criterion range (6 of 6 samples - 100%) from station 8-XDY000.27, at Route 689.

Unnamed tributary to Root Swamp	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
pH - Total Impaired Size by Water Type:			**0.70**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F22R-04-PH** **Beverly Run**

Location: Begins at the confluence with Shady Grove Run and continues downstream until the confluence with Mason Swamp.

City / County: Caroline Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

Excursions below the lower limit of the pH criterion range (2 of 6 samples - 33.3%) from station 8-BEV008.47, at Route 665.

Beverly Run		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life				
	pH - Total Impaired Size by Water Type:			**3.19**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F22R-05-PH** **Doctors Creek**

Location: Begins at the confluence with Tanyard Swamp and continues downstream until the confluence with Maracossic Creek.

City / County: Caroline Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

Excursions below the lower limit of the pH criterion range (3 of 6 samples - 50.0%) from station 8-DOC000.69, at Route 644.

Doctors Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**2.21**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F23E-01-PH** **Mattaponi River**

Location: The mainstem Mattaponi River from the tidal limit to the confluence with Garnetts Creek.

City / County: King And Queen Co. King William Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 4C

The Mattaponi River from the tidal limit near Aylett downstream to Garnetts Creek (1.96 sq. mi.) was assessed in 1998 as impaired of the Aquatic Life Use due to pH violations. During the 2008 cycle, the violation rates are acceptable at various stations, but the segment remains impaired due to a pH violation rate of 8/60 at Route 360 bridge (8-MPN039.10).

However, during the 2006 cycle, the "Natural Conditions Assessment for Low pH, Mattaponi River" was completed. It recommends that the Mattaponi River from Maracossic Creek downstream to Garnetts Creek be reclassified as Class VII swampwaters. Until the WQS can be revised, the segment will be assessed as Category 4C for pH.

Mattaponi River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:	**1.865**		

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F23E-02-BAC** **Mattaponi River**

Location: The Mattaponi River from the tidal limit near the Route 360 bridge downstream to the confluence with Aylett Creek

City / County: King And Queen Co. King William Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 5A

During the 2008 cycle, the Mattaponi River from the tidal limit near the Route 360 bridge downstream to the confluence with Aylett Creek was assessed as not supporting of the Recreation Use due to an E. coli violation rate of 3/21 at 8-MPN039.10.

Mattaponi River		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation	Escherichia coli - Total Impaired Size by Water Type:	**0.155**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F23R-02-DO** **Dickeys Swamp, Dogwood Fork, UT Garnetts Creek UT**

Location: Dickeys Swamp, Dogwood Fork, and an unnamed tributary to Garnetts Creek in their entireties.

City / County: King And Queen Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Oxygen, Dissolved / 5C

Dickeys Swamp from Dogwoods Fork downstream to the mouth was initially assessed as fully supporting but threatened in 1998 based on dissolved oxygen violations at the Route 620 bridge (8-DKW000.12)

The segment was downgraded and extended in 2002 cycle to incorporate Dogwood Fork, the UT to Garnetts Creek (at the confluence of Garnetts and Dickeys), and the headwaters of Dickeys Swamp based on the results of a special study. The TMDL is due in 2014.

In the 2004 cycle, the dissolved oxygen violation rate at 8-DKW000.12 was still unacceptable (3/19), but monitoring upstream on Dickeys Swamp showed acceptable results. However, the segment length was not modified pending further monitoring.

There has been no additional monitoring since 2002.

Dickeys Swamp, Dogwood Fork, UT Garnetts Creek UT **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Oxygen, Dissolved - Total Impaired Size by Water Type:			**16.43**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F23R-03-DO** **Walkerton Branch**

Location: Watershed upstream of Walkerton Millpond

City / County: King And Queen Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Oxygen, Dissolved / 5C

Walkerton Branch was initially assessed as not supporting of the Aquatic Life Use for dissolved oxygen in 2006 based on violations at Route 636 (8-WKN003.16). During the 2008 cycle, the segment remained impaired for dissolved oxygen (8/13). The DO TMDL is due in 2018.

Walkerton Branch	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
Oxygen, Dissolved - Total Impaired Size by Water Type:			**3.93**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F23R-03-PH** **Walkerton Branch**

Location: Watershed upstream of Walkerton Millpond

City / County: King And Queen Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

Walkerton Branch was initially assessed as not supporting of the Aquatic Life Use goal in 2004 based on pH violations at Route 636 (8-WKN003.16). During the 2008 cycle, the segment remained impaired for pH (12/13). The pH TMDL is due in 2016.

Walkerton Branch	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
pH - Total Impaired Size by Water Type:			**3.93**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F23R-06-PCB** **Mattaponi River**

Location: The Mattaponi River from Herring Creek downstream ~10 miles to Aylett Creek.

City / County: King And Queen Co. King William Co.

Use(s): Fish Consumption

Cause(s) / VA Category: PCB in Fish Tissue / 5A

During the 2006 cycle, 2003 monitoring at 8-MPN041.41 indicated exceedances of the fish tissue level for PCBs in 2 species (impaired). In addition, the VDH issued a fish consumption advisory on 12/13/2004 for PCBs from Herring Creek to Aylett Creek which recommends that adults eat no more than 2 meals/month of anadromous striped bass, white perch, and gizzard shad.

Mattaponi River **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCB in Fish Tissue - Total Impaired Size by Water Type:	**0.155**		**4.84**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F24E-02-CHLR** **Mattaponi River**

Location: The mainstem Mattaponi River from the oligohaline boundary downstream to the mouth

City / County: King And Queen Co. King William Co.

Use(s): Aquatic Life Wildlife

Cause(s) / VA Category: Chloride / 5C

In 2004, the Mattaponi River from the oligohaline boundary downstream to its mouth was assessed as impaired of the Aquatic Life and Wildlife goals based on chloride violations at 8-MPN017.46 and 8-MPN04.39, located at Wakema at the end of Route 640 and at Muddy Point, respectively. During the 2006 and 2008 cycles, there were no chloride violations at 8-MPN017.46, however the impairments continued at the downstream station. The chloride TMDL is due in 2016.

Mattaponi River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Chloride - Total Impaired Size by Water Type:	**3.677**		

Mattaponi River **Wildlife**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Chloride - Total Impaired Size by Water Type:	**3.677**		

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F24E-03-EBEN** **Mattaponi River**

Location: The mainstem Mattaponi River within the oligohaline boundaries.

City / County: King And Queen Co. King William Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Estuarine Bioassessments / 5A

During the 2008 cycle, the mainstem portion of the oligohaline Mattaponi River was assessed as not supporting of the Aquatic Life Use due to an impaired estuarine benthic community.

Mattaponi River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	**2.826**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F24E-04-DO** **Mattaponi River**

Location: The oligohaline Mattaponi estuary.

City / County: King And Queen Co. King William Co.

Use(s): Aquatic Life Open-Water Aquatic Life

Cause(s) / VA Category: Oxygen, Dissolved / 5A

The Chesapeake Bay and its tidal tributaries were added by EPA to the 1998 303(d) list. This included the entire tidal portion of the Mattaponi River. EPA listed the impairment as dissolved oxygen violations caused by nutrient overenrichment. During the 2002 cycle, dissolved oxygen and chlorophyll A violation rates at multiple monitoring stations were all acceptable. Since the listing was based solely on the EPA overlist, the impairment has been considered Nutrients/Eutrophication Biological Indicators.

However, during the 2006 cycle, the Chesapeake Bay water quality standards were implemented. The area failed both the Open Water default summer criteria and the rest-of-year criteria of 5 mg/L.

Water quality standards specific for the Pamunkey and Mattaponi Rivers were adopted in the 2008 cycle. The specific criteria recognize that dissolved oxygen is naturally depressed in the rivers due to their extensive marsh systems. During the 2008 cycle, the Mattaponi oligohaline continued to fail both the Open Water summer and rest-of-year criteria. The TMDL is due in 2010.

Mattaponi River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Oxygen, Dissolved - Total Impaired Size by Water Type:	**3.080**		

Mattaponi River **Open-Water Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Oxygen, Dissolved - Total Impaired Size by Water Type:	**3.080**		

Sources:

Agriculture	Atmospheric Deposition - Nitrogen	Industrial Point Source Discharge	Internal Nutrient Recycling
Loss of Riparian Habitat	Municipal Point Source Discharges	Sources Outside State Jurisdiction or Borders	Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F25E-01-BAC** **Mattaponi River**

Location: The Mattaponi River from the transition zone downstream to its mouth.

City / County: King And Queen Co. King William Co.

Use(s): Recreation

Cause(s) / VA Category: Enterococcus / 5A Enterococcus / 5C

The Mattaponi from the transitional boundary downstream to its mouth was assessed as not supporting the Recreation Use based on an enterococci violation rate of 2/6 at 8-MPN004.39 during the 2006 cycle. Further monitoring was conducted in the 2008 cycle. The impairment was continued with an enterococci violation rate of 13/30 at 8-MPN004.39.

Mattaponi River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	**2.535**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F25E-02-SF** **Mattaponi River**

Location: Described in VDH Notice and Description of Shellfish Area Condemnation 049-004B, 11/5/2004

City / County: King And Queen Co. King William Co.

Use(s): Shellfishing

Cause(s) / VA Category: Fecal Coliform / 5B

VDH-DSS Shellfish Condemnation 049-004B, 8/25/2005

Mattaponi River	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shellfishing			
Fecal Coliform - Total Impaired Size by Water Type:	**0.390**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F25R-01-BAC** **Tastine Swamp and Little Tastine Swamp**

Location: From the headwaters of Little Tastine Swamp to Corbins Pond.

City / County: King And Queen Co.

Use(s): Recreation

Cause(s) / VA Category: Fecal Coliform / 5A

Tastine Swamp from the Route 611 bridge downstream to Corbins Pond was initially assessed in 1998 as fully supporting but threatened of the Recreation use goal.

During the year 2002 cycle the segment was downgraded and extended to incorporate Little Tastine Swamp.

In the 2004 cycle, the segment continued to be impaired based on a fecal coliform violation rate of 3/20 at 8-TST001.81 (Route 611 bridge).

There has been no additional DEQ monitoring since 2001.

Tastine Swamp and Little Tastine Swamp **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			**6.00**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F25R-01-DO** **Tastine Swamp and Little Tastine Swamp**

Location: From the headwaters of Little Tastine Swamp to Corbins Pond.

City / County: King And Queen Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Oxygen, Dissolved / 5C

Tastine Swamp from the Route 611 bridge downstream to Corbins Pond was initially assessed in 1998 as fully supporting but threatened of the Aquatic Life use goal.

During the year 2002 cycle the segment was downgraded and extended to incorporate Little Tastine Swamp.

In the 2004 cycle, the segment continued to be impaired based on a dissolved oxygen violation rate of 3/20 at 8-TST001.81 (Route 611 bridge).

There has been no additional monitoring since 2001.

Tastine Swamp and Little Tastine Swamp **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Oxygen, Dissolved - Total Impaired Size by Water Type:			**6.00**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F26E-01-PCB** **York River Basin VDH Fish Consumption Advisory for PCBs**

Location: This cause encompasses the York River mainstem, from the Town of West Point (confluence of Mattaponi and Pamunkey Rivers) downstream to the mouth (line between Tue Point and Hog Island), and includes the tidal portions of the following tributaries: King Creek, Queen Creek and Wormley Creek.

City / County: Gloucester Co. James City Co. King And Queen Co. King William Co. New Kent Co.
Williamsburg City York Co.

Use(s): Fish Consumption

Cause(s) / VA Category: PCB in Fish Tissue / 5A

The Fish Consumption Use is impaired based on the VDH fish consumption advisory for PCBs fish tissue contamination within the York River and select tidal tributaries, issued 12/13/04. During the 2004 IR cycle, a VDH Fish Consumption Restriction was issued for the York River, from the Town of West Point (confluence of Mattaponi and Pamunkey Rivers) downstream to the mouth (line between Tue Point and Hog Island), and includes the tidal portions of the following tributaries: King Creek, Queen Creek and Wormley Creek.

York River Basin VDH Fish Consumption Advisory for PCBs	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fish Consumption			
PCB in Fish Tissue - Total Impaired Size by Water Type:	**57.782**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F26E-03-BAC** **Queen Creek**

Location: This cause encompasses Queen Creek, from the end of tidal waters (below dam at Waller Mill Res.) downstream to the mouth.

City / County: Williamsburg City York Co.

Use(s): Recreation

Cause(s) / VA Category: Enterococcus / 5A

The Recreation Use is impaired (8 violate / 22 obs.) due to exceedance of the instantaneous criteria for Enterococcus bacteria at station 8-QEN002.47. The segment was previously assessed as not supporting the Recreation Use due to fecal coliform violations at station 8-QEN002.47. The TMDL is due in 2010. During the 2006 cycle, the impairment converted to enterococci (8/22), however the original due date was maintained.

Queen Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	**0.438**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F26E-05-BAC** **York River**

Location: This cause encompasses the York River, from the start of York River at West Point (RM 32.0) downstream to the boundary of DSS condemnation # 049-004 A (effective 20050825), approx. New Kent Co. line. CBP segment YRKMH.

City / County: King And Queen Co. King William Co. New Kent Co.

Use(s): Recreation

Cause(s) / VA Category: Enterococcus / 5A

The Recreation Use is impaired due to an Enterococci bacteria violation rate of 18/50 at DEQ station 8-YRK031.39 (RET4.3). The TMDL is due in 2018. Previous TMDL ID = VAT-F26E-05 .

York River		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Enterococcus - Total Impaired Size by Water Type:	**6.966**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F26E-06-SF** **Fox Creek**

Location: This cause encompasses Fox Creek, from estuarine/riverine transition to mouth. CBP segment YRKMH. DSS condemnation # 047-072 A (effective 20060615).

City / County: York Co.

Use(s): Shellfishing

Cause(s) / VA Category: Fecal Coliform / 5B

The Shellfishing Use is impaired due to the DSS shellfish harvesting condemnation # 047-072 A (effective 20060615).

Fox Creek **Shellfishing**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	**0.022**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F26E-10-SF** **Carter Creek**

Location: This cause encompasses Carter Creek, from estuarine/riverine transition to mouth. CBP segment YRKMH. DSS condemnation # 050-079 A (effective 20030912).

City / County: York Co.

Use(s): Shellfishing

Cause(s) / VA Category: Fecal Coliform / 5B

The Shellfishing Use is impaired due to the DSS shellfish harvesting condemnation # 050-079 A (effective 20030912).

Carter Creek		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	**0.030**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F26E-12-SF** **Poropotank River and Purtan, Leigh and Adams Creeks**

Location: Described in VDH Notice and Description of Shellfish Condemnation # 048-128 B (effective 20050823).

City / County: Gloucester Co. King And Queen Co.

Use(s): Shellfishing

Cause(s) / VA Category: Fecal Coliform / 5B

The Shellfishing Use is impaired due to the DSS shellfish harvesting condemnation # 048-128 B (effective 20050823).

1999 CD segment for shellfish (Attachment A, Category 3,) VAT-F26E-12.

Poropotank River and Purtan, Leigh and Adams Creeks	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shellfishing			
Fecal Coliform - Total Impaired Size by Water Type:	**1.385**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F26E-15-SF** **Aberdeen, Carter, Cedarbush, Jones, and Timberneck Creeks**

Location: Described in VDH Notice and Description of Shellfish Condemnation # 047-078 A (effective 20060615).

City / County: Gloucester Co.

Use(s): Shellfishing

Cause(s) / VA Category: Fecal Coliform / 4A

The Shellfishing Use is impaired due to the DSS shellfish harvesting condemnation # 047-078 A (effective 20060615). Previous (2006) TMDL ID = VAT-F26E-15. Covered under TMDL "York River: Gloucester Point to Jones Creek" ( ) VAT-F26E-??, EPA approved 7/30/2007.
1998 CD segment for shellfish (Attachment A, Category 3,) VAT-F26E-15.

Aberdeen, Carter, Cedarbush, Jones, and Timberneck Creeks	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shellfishing			
Fecal Coliform - Total Impaired Size by Water Type:	**0.624**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F26E-16-SF** **Queen Creek**

Location: Described in VDH Notice and Description of Shellfish Condemnation # 051-035 A (effective 20060614).

City / County: Williamsburg City York Co.

Use(s): Shellfishing

Cause(s) / VA Category: Fecal Coliform / 5B

The Shellfishing Use is impaired due to the DSS shellfish harvesting condemnation # 051-035A, 10/7/2004.

1998 CD segment for shellfish (Attachment A, Category 3,) VAT-F26E-16..

Queen Creek		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	**0.438**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F26E-17-SF** **Skimino Creek**

Location: Described in VDH Notice and Description of Shellfish Condemnation # 050-087 A (effective 20050824).

City / County: James City Co. York Co.

Use(s): Shellfishing

Cause(s) / VA Category: Fecal Coliform / 5B

The Shellfishing Use is impaired due to the DSS shellfish direct harvesting condemnation # 050-087 A (effective 20050824) which is present.

1999 CD segment for shellfish (Attachment A, Category 3,) VAT-F26E-17.

Skimino Creek		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	**0.191**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F26E-18-SF** **Taskinas and Ware Creeks**

Location: Described in VDH Notice and Description of Shellfish Condemnation # 050-073 B (effective 20060620).

City / County: James City Co.

Use(s): Shellfishing

Cause(s) / VA Category: Fecal Coliform / 5B

The Shellfishing Use is impaired due to the DSS shellfish direct harvesting condemnation # 050-073 B (effective 20060620).

1999 CD segment for shellfish (Attachment A, Category 3,) VAT-F26E-18.

Taskinas and Ware Creeks		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	**0.112**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F26E-20-CHLR** **York River - Upper**

Location: This cause encompasses the upper York River, from the start of the York River at West Point (RM 32.0) downstream to the boundary of DSS condemnation # 049-004 A (effective 20050825), approx. New Kent Co. line. CBP segment YRKMH.

City / County: King And Queen Co. King William Co. New Kent Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Chloride / 5C

This Aquatic Life Use impairment is related to chloride exceedance of DEQ acute criteria for chloride in transitional waters (freshwater criteria apply since classified Tidal Freshwater). The cause of the chloride standard exceedance is attributed to naturally occurring conditions of saline water intrusion from downstream estuarine waters. The TMDL is due in 2020.

York River - Upper **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Chloride - Total Impaired Size by Water Type:	**6.966**		

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F26E-20-SF** **York River mainstem, Unsegmented estuaries in F26E, Baker, Bakers, Ferry, Hockley and Robinson Creeks**

Location: Described in VDH Notice and Description of Shellfish Condemnation # 049-004 A (effective 20050825).

City / County: King And Queen Co. King William Co. New Kent Co.

Use(s): Shellfishing

Cause(s) / VA Category: Fecal Coliform / 5B

The Shellfishing Use is impaired due to the DSS shellfish direct harvesting condemnation # 049-004 A (effective 20050825).

York River mainstem, Unsegmented estuaries in F26E, Baker, Bakers, Ferry, Hockley and Robinson Creeks	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shellfishing			
Fecal Coliform - Total Impaired Size by Water Type:	**7.218**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F26E-27-SF** **Aberdeen and Carter Creeks**

Location: Described in VDH Notice and Description of Shellfish Condemnation # 047-078 A (effective 20060615).

City / County: Gloucester Co.

Use(s): Shellfishing

Cause(s) / VA Category: Fecal Coliform / 5B

The Shellfishing Use is impaired due to the DSS shellfish direct harvesting condemnation # 047-078 A (effective 20060615). Previous (2006) TMDL ID = VAT-F26E-15.

Aberdeen and Carter Creeks **Shellfishing**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	**0.148**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F26L-01-DO** **Waller Mill Reservoir**

Location: This cause encompasses Waller Mill Reservoir, headwater impounded portion of Queen Cr. North of Williamsburg in York County.

City / County: York Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Oxygen, Dissolved / 5A

The Aquatic life use is not supporting based on samples taken at stations 8-QEN007.02, 8-QEN007.22, 8-QEN008.02, 8-QEN008.58 for dissolved oxygen with a pooled violation rate of 24.4 % (31 violations /127 obs.). Individual exceedances include 8-QEN007.02 (0 violates/ 28 obs) , 8-QEN007.22 (15 violates/ 49 obs) , 8-QEN008.02 (10 violates/ 28 obs), and 8-QEN008.58 (6 violates/ 22 obs).

Waller Mill Reservoir **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Oxygen, Dissolved - Total Impaired Size by Water Type:		**287.70**	

Sources:

Changes in Ordinary Stratification and Bottom Water Hypoxia/Anoxia	Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F26R-01-BAC** **Carter Creek**

Location: This cause encompasses the riverine portion of Carter Creek

City / County: York Co.

Use(s): Recreation

Cause(s) /
VA Category: Fecal Coliform / 5A

The Recreation Use is impaired based on exceedance of the instantaneous criteria for Enterococcus bacteria. Sufficient exceedances of Virginia's water quality standard for Fecal Coliform bacteria were recorded at DEQ's biological water quality monitoring station (2/3) on Carter Creek to assess this segment as not supporting of the Clean Water Act's Recreation Use Support Goal.

Carter Creek		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation				
	Fecal Coliform - Total Impaired Size by Water Type:			**2.30**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F26R-01-BEN** **Carter Creek**

Location: This cause encompasses the riverine portion of Carter Creek

City / County: York Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic-Macroinvertebrate Bioassessments / 5A

The Aquatic life use is not supporting based on benthic population diversity and abundance measures. Benthic biological monitoring at station 8-CTC003.78 (located at State Route 604) indicated the stream's benthic community was moderately impaired. As a result, DEQ's General Standard (VR680-21-01.2) is not met for the protection of benthic aquatic life and this segment is assessed as not supporting of the Clean Water Act's Aquatic Life Use.

Carter Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic-Macroinvertebrate Bioassessments - Total Impaired Size by Water Type:			**2.30**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F26R-02-BEN** **Unnamed Tributary to Bland Creek**

Location: This cause encompasses this riverine Unnamed Tributary to Bland Creek. From headwaters downstream to confluence with Bland Creek.

City / County: Gloucester Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic-Macroinvertebrate Bioassessments / 5A

The Aquatic life use is not supporting based on benthic population diversity and abundance measures at this Freshwater Probabilistic Monitoring (FPM) station. Benthic biological monitoring at station 8-XEA000.12 (FPM) indicated the stream's benthic community was moderately impaired. As a result, DEQ's General Standard (VR680-21-01.2) is not met for the protection of benthic aquatic life and this segment is assessed as not supporting of the Clean Water Act's Aquatic Life Use. The Aquatic Life Use is not supported based on the benthic data collected in 2001 (Benthic ProbMon-Benthic IM [MI: S&F-01]) The Dissolved Oxygen data collected has 1 violation/ 1 observation.

Unnamed Tributary to Bland Creek	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
Benthic-Macroinvertebrate Bioassessments - Total Impaired Size by Water Type:			**1.21**

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F27E-05-BAC** **King Creek**

Location: This cause encompasses King Creek, from end of tidal waters downstream to mouth (confluence with the mainstem York River). CBP segment YRKPH. DSS (OPEN) condemnation # 051-035 C (effective 20060614).
YRKPH

City / County: York Co.

Use(s): Recreation

Cause(s) /
VA Category: Enterococcus / 5A

The Recreation Use is impaired based on enterococci violation rate of 12/25 at station 8-KNG004.46. Sufficient exceedances of Virginia's water quality standards for Fecal Coliform Bacteria were recorded at DEQ's ambient water quality monitoring station on King Cr. to assess this segment as not supporting of the Clean Water Act's Recreation Use Support Goal for the 2002 305(b) report. The impairment was converted from fecal coliform to enterococci, however the original TMDL due date was maintained. Previous (2004 & 6 IR) TMDL ID = VAT-F27E-05.

1998 CD segment for DO & FC (Attachment A, Category 1, Part 2 & Attachment B) VAT-F27E-05.

King Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	**0.415**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F27E-12-SF** **Felgates and King Creeks**

Location: Described in VDH Notice and Description of Shellfish Condemnation # 051-035C (effective 20060614).

City / County: York Co.

Use(s): Shellfishing

Cause(s) / VA Category: Fecal Coliform / 5B

The Shellfishing Use is impaired based on the DSS condemnation # 051-035C (effective 20060614).

1999 CD segment for shellfish (Attachment A, Category 3,) VAT-F27E-12.

Felgates and King Creeks **Shellfishing**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	**0.596**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **F27E-14-SF** **Perrin River - Upper**

Location: This cause encompasses the upper Perrin River, from DSS marker "D-Buckle" upstream to end of tidal waters. CBP segment YRKPH. DSS condemnation # 046-081A (effective 2006-07-19). North shore tributary to York River near Cuba Island.

City / County: Gloucester Co.

Use(s): Shellfishing

Cause(s) / VA Category: Fecal Coliform / 5B

The Shellfishing Use is impaired based on the DSS condemnation #046-081A, 07/19/2006. 1998 CD segment for shellfish (Attachment A, Category 3,) VAT-F27E-14.

Perrin River - Upper		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	**0.082**		

Sources:

Source Unknown

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York River Basin

Cause Group Code **F27E-15-SF** **Sarah Creek - Upper**

Location: Described in VDH Notice and Description of Shellfish Condemnation # 046-052A (effective 2004-10-02).

City / County: Gloucester Co.

Use(s): Shellfishing

Cause(s) / VA Category: Fecal Coliform / 4A

The Shellfishing Use is impaired based on the DSS condemnation #046-052, 10/2/2004.
1998 CD segment for shellfish (Attachment A, Category 3,) VAT-F27E-15. Covered under TMDL for Sarah Creek # 25427 (EPA approved 6/7/2006).

Sarah Creek - Upper		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shellfishing				
	Fecal Coliform - Total Impaired Size by Water Type:	**0.450**		

Sources:

Source Unknown

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York River Basin

Cause Group Code **MPNTF-BNUT-BAY** **Mattaponi River**

Location: The tidal freshwater Mattaponi estuary.

City / County: King And Queen Co. King William Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Nutrient/Eutrophication Biological Indicators / 5A

The Chesapeake Bay and its tidal tributaries were added by EPA to the 1998 303(d) list. This included the entire tidal portion of the Mattaponi River. EPA listed the impairment as dissolved oxygen violations caused by nutrient overenrichment. During the 2002 cycle, dissolved oxygen and chlorophyll A violation rates at multiple monitoring stations were all acceptable (see below). Since the listing was based solely on the EPA overlist, the impairment has been considered Nutrients/Eutrophication Biological Indicators.

However, during the 2006 cycle, the Chesapeake Bay water quality standards were implemented. The tidal freshwater portion of the Mattaponi had acceptable SAV acreages and was considered fully supporting the Shallow Water Uses. However, the area failed the default CB 30-day open water summer criteria of 5.5 mg/L. The TMDL is due in 2010.

Water quality standards specific for the Pamunkey and Mattaponi Rivers were adopted in the 2008 cycle. The specific criteria recognize that dissolved oxygen is naturally depressed in the rivers due to their extensive marsh systems. The Mattaponi Tidal Freshwater segment was in attainment of both the site-specific 30-day open water summer DO criteria and the 30-day Rest of Year DO criteria.

The Shallow Water Use was fully supporting the SAV acreage and Water Clarity criteria.

Although the Mattaponi Tidal Freshwater segment was in attainment of every Chesapeake Bay criteria which was measured, there was insufficient information to assess the Migratory Spawning Use or the other Open Water Use's dissolved oxygen frequency criteria, therefore the mainstem must remain impaired due to EPA's overlisting (nutrients/eutrophication biological indicators). The tributaries will be considered Category 2A.

Mattaponi River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Nutrient/Eutrophication Biological Indicators - Total Impaired Size by Water Type:	**3.257**		

Sources:

Source Unknown

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York River Basin

Cause Group Code **PMKOH-DO-BAY** **Pamunkey River**

Location: The oligohaline Pamunkey estuary.

City / County: King William Co. New Kent Co.

Use(s): Aquatic Life Open-Water Aquatic Life

Cause(s) / VA Category: Oxygen, Dissolved / 5A

The Pamunkey River was initially listed on the 1998 303(d) list as fully supporting but threatened of the aquatic life use goal because a 1995 special study showed river subject to 33% violation rate of daily mean DO standard during warm weather conditions (May through October). The estuarine Pamunkey River is considered fully allocated relative to dissolved oxygen; new discharges cannot result in further DO depression.

The Chesapeake Bay and its tidal tributaries were added by EPA to the 1998 303(d) list. EPA listed the impairment as dissolved oxygen violations caused by nutrient overenrichment. This listing included the entire mainstem estuarine Pamunkey River.

However, during the 2006 cycle, the new Chesapeake Bay water quality standards were adopted. The oligohaline Pamunkey segment failed the default CB 30-day open water summer dissolved oxygen criteria of 5 mg/L.

During the 2008 cycle, Water Quality Standards specific for the Pamunkey and Mattaponi Rivers were adopted; the specific criteria recognize that dissolved oxygen is naturally depressed below the default criteria in the rivers due to their extensive marsh systems. The PMKOH segment failed the Summer Open Water 30-day dissolved oxygen criteria. The TMDL is currently due in 2010.

Pamunkey River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Oxygen, Dissolved - Total Impaired Size by Water Type:	**7.430**		

Pamunkey River **Open-Water Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Oxygen, Dissolved - Total Impaired Size by Water Type:	**7.430**		

Sources:

Agriculture	Atmospheric Deposition - Nitrogen	Industrial Point Source Discharge	Internal Nutrient Recycling
Loss of Riparian Habitat	Municipal Point Source Discharges	Sources Outside State Jurisdiction or Borders	Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

*Appendix A - List of Impaired (Category 5) Waters in 2008**

York River Basin

Cause Group Code **PMKTF-BNUT-BAY** **Pamunkey River**

Location: The tidal freshwater Pamunkey River estuary.

City / County: Hanover Co. King William Co. New Kent Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Nutrient/Eutrophication Biological Indicators / 5A

The tidal Pamunkey River was initially listed on the 1998 303(d) list as fully supporting but threatened of the aquatic life use goal because a 1995 special study showed river subject to 33% violation rate of daily mean DO standard during warm weather conditions May through October. The estuarine Pamunkey River is considered fully allocated relative to dissolved oxygen. New discharges cannot result in further DO depression.

The Chesapeake Bay and its tidal tributaries were added by EPA to the 1998 303(d) list. EPA listed the impairment as dissolved oxygen violations caused by nutrient overenrichment. This listing included the entire mainstem estuarine Pamunkey River.

During the 2006 cycle, the new Chesapeake Bay water quality standards were adopted. The tidal freshwater Pamunkey segment failed the default CB 30-day open water summer dissolved oxygen criteria of 5.5 mg/L. Water quality standards specific for the Pamunkey and Mattaponi Rivers were adopted after the close of the assessment period and the new criteria were used in the 2008 cycle. The specific criteria recognize that dissolved oxygen is naturally depressed in the rivers due to their extensive marsh systems. The Pamunkey Tidal Freshwater segment was in attainment of both the site-specific 30-day open water summer DO criteria and the 30-day Rest of Year DO criteria.

The Shallow Water Use was fully supporting the SAV acreage and Water Clarity criteria.

Although the Pamunkey Tidal Freshwater segment was in attainment of every Chesapeake Bay criteria which was measured, there was insufficient information to assess the Migratory Spawning Use or the other Open Water Use's dissolved oxygen frequency criteria, therefore the mainstem must remain impaired due to EPA's overlisting. The tributaries will be considered Category 2A.

Pamunkey River	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
Nutrient/Eutrophication Biological Indicators - Total Impaired Size by Water Type:	**4.914**		

Sources:

Source Unknown

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York River Basin

Cause Group Code **YRKMH-DO-BAY** **York Mesohaline**

Location: The York mesohaline segment, including the applicable portions of the Pamunkey and Mattaponi Rivers.

City / County: Gloucester Co. James City Co. King And Queen Co. King William Co. New Kent Co.
Williamsburg City York Co.

Use(s): Aquatic Life Open-Water Aquatic Life

Cause(s) / VA Category: Oxygen, Dissolved / 5A

The Pamunkey River was initially listed on the 1998 303(d) list as fully supporting but threatened of the aquatic life use goal because a 1995 special study showed river subject to 33% violation rate of daily mean DO standard during warm weather conditions May through October. The estuarine Pamunkey River is considered fully allocated relative to dissolved oxygen; new discharges cannot result in further DO depression.

The Chesapeake Bay and its tidal tributaries were added by EPA to the 1998 303(d) list. EPA listed the impairment as dissolved oxygen violations caused by nutrient overenrichment. This listing included the entire mainstem estuarine York, Pamunkey, and Mattaponi Rivers.

New Chesapeake Bay water quality standards have since been adopted. The mesohaline York segment (which includes the mouths of the Pamunkey and Mattaponi Rivers) failed the CB 30-day open water summer dissolved oxygen criteria in the 2008 cycle.

York Mesohaline **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Oxygen, Dissolved - Total Impaired Size by Water Type:	**37.095**		

York Mesohaline **Open-Water Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Oxygen, Dissolved - Total Impaired Size by Water Type:	**37.095**		

Sources:

- Agriculture
- Atmospheric Deposition - Nitrogen
- Industrial Point Source Discharge
- Internal Nutrient Recycling
- Loss of Riparian Habitat
- Municipal Point Source Discharges
- Sources Outside State Jurisdiction or Borders
- Wet Weather Discharges (Non-Point Source)
- Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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York River Basin

Cause Group Code **YRKMH-SAV-BAY** **York Mesohaline**

Location: The York mesohaline segment, including the applicable portions of the Pamunkey and Mattaponi Rivers.

City / County: Gloucester Co. James City Co. King And Queen Co. King William Co. New Kent Co.
Williamsburg City York Co.

Use(s): Aquatic Life Shallow-Water Submerged Aquatic Vegetation

Cause(s) / VA Category: Aquatic Plants (Macrophytes) / 5A

During the 2006 cycle, the new Chesapeake Bay water quality standards were adopted. The mesohaline York segment (which includes the mouths of the Pamunkey and Mattaponi Rivers) failed the Shallow Water Submerged Aquatic Vegetation and water clarity acreage requirements in the 2008 cycle.

York Mesohaline **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:	**37.095**		

York Mesohaline **Shallow-Water Submerged Aquatic Vegetation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:	**37.095**		

Sources:

Agriculture	Atmospheric Deposition - Nitrogen	Clean Sediments	Industrial Point Source Discharge
Internal Nutrient Recycling	Loss of Riparian Habitat	Municipal Point Source Discharges	Sediment Resuspension (Clean Sediment)
Sources Outside State Jurisdiction or Borders	Wet Weather Discharges (Non-Point Source)	Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)	

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York River Basin

Cause Group Code **YRKPH-DO-BAY** **Lower York River, Perrin River, Carter, Sarah, Felgates, King and Wormley Creeks and Unsegmented Estuaries in CBP segment YRKPH**

Location: This cause encompasses the entirety of the Lower York River system CBP segment YRKPH.

City / County: Gloucester Co. York Co.

Use(s): Aquatic Life Deep-Water Aquatic Life Open-Water Aquatic Life

Cause(s) / VA Category: Oxygen, Dissolved / 5A

The Aquatic Life and Open-Water Aquatic Life Use is impaired based on failure to meet the dissolved oxygen criteria for Open Water - Summer. The 30-day dissolved oxygen criteria for open water use failed for the 2008 assessment. There is insufficient data to assess remaining shorter-term dissolved oxygen criteria for this use. During the 2006 cycle, the revised Chesapeake Bay water quality standards were adopted. The York Polyhaline segment failed the Open Water Use's summer dissolved oxygen criteria.

Lower York River, Perrin River, Carter, Sarah, Felgates, King and Wormley Creeks and Unsegmented Estuaries in CBP segment YRKPH	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
Oxygen, Dissolved - Total Impaired Size by Water Type:	**26.651**		

Lower York River, Perrin River, Carter, Sarah, Felgates, King and Wormley Creeks and Unsegmented Estuaries in CBP segment YRKPH	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Deep-Water Aquatic Life			
Oxygen, Dissolved - Total Impaired Size by Water Type:	**23.626**		

Lower York River, Perrin River, Carter, Sarah, Felgates, King and Wormley Creeks and Unsegmented Estuaries in CBP segment YRKPH	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Open-Water Aquatic Life			
Oxygen, Dissolved - Total Impaired Size by Water Type:	**26.651**		

Sources:

Agriculture	Atmospheric Deposition - Nitrogen	Industrial Point Source Discharge	Internal Nutrient Recycling
Loss of Riparian Habitat	Municipal Point Source Discharges	Non-Point Source	Sources Outside State Jurisdiction or Borders
Wet Weather Discharges (Non-Point Source)	Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)		

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York River Basin

Cause Group Code **YRKPH-SAV-BAY** **Lower York River, Perrin River, Carter, Sarah, Felgates, King and Wormley Creeks and Unsegmented Estuaries in CBP segment YRKPH**

Location: This cause encompasses the entirety of the Lower York River system CBP segment YRKPH.

City / County: Gloucester Co. York Co.

Use(s): Aquatic Life Shallow-Water Submerged Aquatic Vegetation

Cause(s) / VA Category: Aquatic Plants (Macrophytes) / 5A

The Shallow-Water Submerged Aquatic Vegetation Use is impaired based on failure to meet the SAV acreage criteria.

Lower York River, Perrin River, Carter, Sarah, Felgates, King and Wormley Creeks and Unsegmented Estuaries in CBP segment YRKPH	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:	**26.651**		

Lower York River, Perrin River, Carter, Sarah, Felgates, King and Wormley Creeks and Unsegmented Estuaries in CBP segment YRKPH	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shallow-Water Submerged Aquatic Vegetation			
Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:	**26.651**		

Sources:

Agriculture	Atmospheric Deposition - Nitrogen	Clean Sediments	Industrial Point Source Discharge
Internal Nutrient Recycling	Loss of Riparian Habitat	Municipal Point Source Discharges	Sediment Resuspension (Clean Sediment)
Sources Outside State Jurisdiction or Borders	Wet Weather Discharges (Non-Point Source)	Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)	